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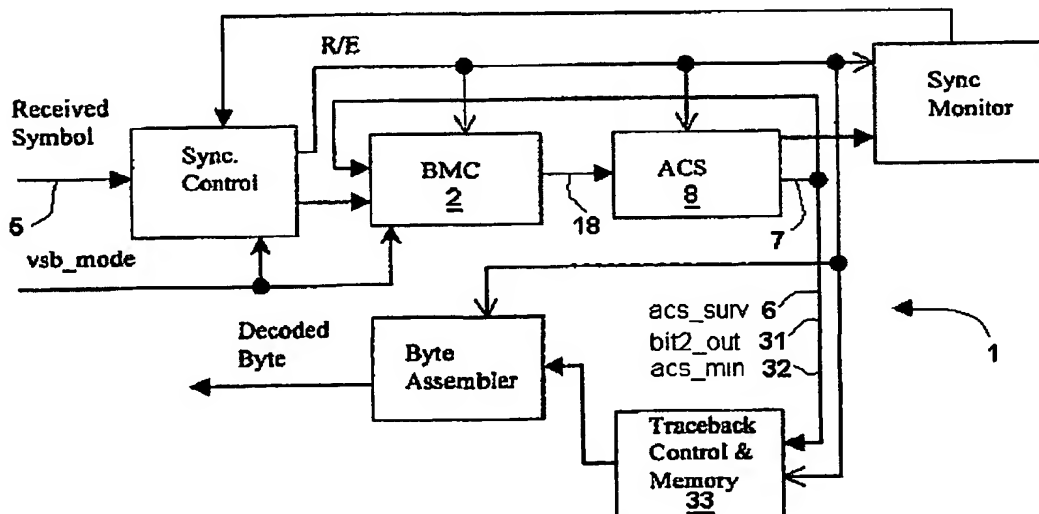
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(54) Title: HDTV TRELLIS DECODER ARCHITECTURE



(57) Abstract: A trellis decoding system (1) for use in processing a High Definition Television signal. The trellis decoding system includes a traceback unit (33) that identifies a sequence of antecedent trellis states in accordance with a state transition trellis. A branch metric computer (2) includes eight discrete subunits (3), one for each possible trellis state. Each subunit (3) generates two output bits (14, 15) indicative of the two trellis branches exiting the trellis state represented by that particular subunit (3). An add-compare-select unit (8) includes eight discrete subunits (23), each associated with a particular trellis state. Each subunit (23) includes as an input two bits (28, 29) received from the branch metric computer (2) and as an output two bits (6, 31). Bit 31 is chosen from 28 and 29. Bit 6 is chosen from the branch metric information (26, 27) input to each subunit (23). A traceback control and memory unit (33) includes an N to 1 multiplier (49) which receives as an input the output bits (6, 31) from the add-compare-select unit (8). The present system offers a hardware reduction from prior art.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/09862

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : HO4L 5/12

US CL : 375/265

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 375/265,350,340.25,340; 348/21,470

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
USPAT, US-PGPUB, IEEE Xplore

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,841,478 A (HU et al.) 24 November 1998 (24.11.1998), Figs. 1-15	1-19
Y	US 5,923,711 A (WILLMING) 13 July 1999 (13.07.1999), column 6, line 55- column 7, line 67	1, 8, and 14
Y	US 20020001353 A1 (CITTA et al.) 03 January 2002 (03.01.2002), paragraph 0078-paragraph 0091.	1, 8, and 14

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

### \* Special categories of cited documents:

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- "P" document published prior to the international filing date but later than the priority date claimed

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later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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